

SYSTEM SUPPORT DIRECTIVE

ASR9

SSM-ASR9-018

6310

System Support Modification

SAFETY MODIFICATION SAFETY ANCHOR BRACKET WORK POSITIONING

Highlights

- New anchor bracket for OSHA required body harness

11/22/2004

1. PURPOSE. THIS IS A SAFETY MODIFICATION. This modification will provide an Occupational Safety Hazard Administration (OSHA) required component, to the ASR-9 antenna, in order to provide a work positioning tie point on the backside of the antenna.

2. DISTRIBUTION.

a. This SSM is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: ASR9.

b. An electronic version and distribution report of this SSM are available on an Intranet site located at <http://aos-ext.amc.faa.gov/> under the "Technical Documentation" heading.

c. To obtain additional hard copies of this publication, contact Printing & Distribution Team, AMI-700B, at (405) 954-6892.

3. WITHDRAWALS. None.

4. REFERENCES.

a. OSHA requirement for technicians performing essential two-handed maintenance.

b. TI 6310.30, Rotary Joint (Unit 8), Pedestal (Unit 9), Radar Antenna (Unit 10), and Antenna Control (Unit 11)

c. Configuration Control Decision (CCD) No. N23298, ASR-9 Tower, Hoist Installation and OSHA Modification Drawing Baseline.

5. BACKGROUND. Sites require an anchor point to attach a safety harness. The design of the ASR9 antenna did not have an adequate point to latch the harness onto. The included plates will provide the necessary anchor point for a work positioning harness.

6. APPLICATION. This modification applies to all ASR9 antennas.

DISTRIBUTION: 53AC

INITIATED BY: ASR-9 Terminal/RDAS
Branch

7. MATERIALS REQUIRED. The following material is required to modify each unit and is available in kit form on NSN ASR9 00410 0000-00-012-1729.

	<u>Description</u>	<u>NSN</u>	<u>Quantity</u>
a.	6061-T6 Aluminum Plate	5340-01-519-6823	2 pieces
b.	1/4" -28 1.5" stainless steel bolt		4 pieces
c.	316 Stainless steel washers		8 pieces
d.	316 Stainless steel Lock Washers		4 pieces
e.	316 Stainless steel Hex Nut		4 pieces
f.	2oz glass bottle - Int'l Orange paint		1 piece
g.	Bottle lid with attached brush*		1 piece

*Note: Some bottles may be capped with lid containing brush already.

8. SOURCE OF MATERIALS. The materials shall be supplied by AOS-270.

9. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED.

- a. Two (2) - 7/16" wrenches.
- b. Can of WD-40 or similar product.
- c. Hammer
- d. Torque wrench

10. PROCEDURE TO BE PERFORMED BY. Field maintenance personnel.

11. WHEN MODIFICATION IS TO BE PERFORMED. As soon as practical after receipt of this modification.

12. ESTIMATED TIME REQUIRED. One hour per radar site. Estimated time does not include modification preparation or updating of the instruction books.

13. DISPOSITION OF SURPLUS PARTS. None.

14. PROCEDURE.

- a. At system control, turn OFF high voltage for both transmitters and stop antenna rotation. Also, turn OFF beacon transmitters.
- b. At antenna control unit, Switch REMOTE/LOCAL switch to LOCAL.
- c. In the ASR-9 power panel, switch MTR 1 and MTR 2 circuit breakers OFF. Place maintenance tag on panel.

- d. Follow OSHA requirements for fall protection, put on safety harness with work positioning cable.
- e. Climb ladder located on the back of the ASR-9 Antenna, to the second tier. (Figure 1)
- f. Secure safety harness around ladder as a temporary measure.
- g. Remove the two bolts from either designated areas (Figure 2 or 3). Due to possible corrosion, bolts could be stuck. Apply WD-40 or similar product and allow to penetrate until bolt can be freed. Tap lightly with hammer too loosen any remaining corrosion. Take care not to distort bolts in the process.
- h. Fit bracket over rivet hole and slide a new bolt (with washer) into bottom hole facing upwards. Then add the second washer, lock washer and then nut. (Figure 4 and 5) Once both bolts have been added, proceed to tighten down to a torque rating of around 95 (+/- 5) inch pounds.
- i. Repeat steps (g) and (h) to install the second bracket. (Figure 2 or 3)
- j. Use the paint bottle supplied to touch up the installation hardware with the Intl' Orange paint. Let paint dry for 15 minutes prior to antenna start up. Final product should resemble those in Figure 4 and 5.
- k. In the ASR-9 power panel, switch MTR 1 and MTR 2 circuit breakers ON. Remove maintenance tag. At antenna control unit, Switch REMOTE/LOCAL switch to REMOTE.
- l. Turn ON beacon transmitters. Also at system control; turn ON high voltage for both transmitters and begin antenna rotation.

15. TEST AFTER MODIFICATION. None.

16. RESULT OF MODIFICATION. Two anchor brackets for a worker's safety harness.

17. CHANGES TO INSTRUCTION BOOKS.

PAGE CONTROL CHART			
Remove Pages	Dated	Insert Pages	Dated
All Pages	All Dates	<u>SSD TOC</u>	11/22/2004
		All Pages	
3-3 through 3-8	undated	<u>TI 6310.30</u>	undated 11/22/2004
		3-3	
		3-4	

18. CHANGES TO INSTALLATION DRAWINGS. None.

19. CHANGES TO RECORDED DATA. Enter this SSD number, date, chapter, and change number on the appropriate FAA Form 6032-1, Airway Facilities Modification Record.

20. ADDRESS CHANGES. Submit facility address, copy count, and additions or deletions to Carrie Batty via email to carrie.ctr.batty@faa.gov.

21. CLARIFICATION OR COMMENTS. This chapter will be included in the next revision to the table of contents.

22. RISKS. If changes are not incorporated, unauthorized configuration may degrade the efficiency of the National Airway Systems (NAS) and the ability to maintain operations.

23. FALLBACK PROCEDURES. If changes are not incorporated or unattainable by the installer, contact AOS-200 for field support assistance to clarify procedures and options.

24. STATUS ACCOUNTING. Providing your equipment is listed in the Facility/Service Equipment Profile (FSEP), the Maintenance Organization has opened a Log Equipment Modification (LEM) record in the Maintenance Management System (MMS) for the system to be modified from Paragraph 6, Application.

- a. Upon completion of this modification, you are required to close the LEM record and change the Maintenance Action Code (MAC) to:
 - (1) **"G"** if the modification was completed.
 - (2) **"W"** if the modification is not applicable.
- b. Verify that an **"N"** is in the **"REP COD"** field to ensure that the log entry will be upwardly reportable to the national database for National MOD Tracking.

MMS FIELD NAME	DATA ENTRY
FAC/SERV:	ASR
LOC IDENT:	XXX

NOTE: Enter your site identification code associated with the FSEP facility identification code for ASR9, 53AC

SHORT NAME:	SYS
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NOTE: The regional person processing this entry should change SYS to the acronym for Line Replacement Unit (LRU) modified.

ORDER#/SYSTEM:	SSM-ASR9
CHAP/SEQ#:	018
CHG:	HW

If you have questions about the LEM entries made by the maintenance engineering organization, please call Trudy Green (405) 954-4421.

25. RECOMMENDATIONS FOR CHANGES. Forward any recommendations for changes to this directive through normal channels to the National Airway Systems Engineering Office, Operational Support.



for Richard A. Thoma
Director for Technical Operations Support

LIST OF APPENDIXES AND ATTACHMENTS		
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APPENDIX 1. TEST AND EVALUATION GOLD STANDARD CONSIDERATIONS

1. **Purpose** - This appendix communicates the type of Gold Standard testing that was accomplished on this directive, SSM-ASR9-018. The scope of the testing conducted on this modification and test results are provided. Any additional unique testing or evaluation beyond the normal modification tests, that needs to be conducted during the field installation, is included in the Test Limitation paragraph.
2. **Scope** - This modification has completed development and systems testing. The system test was conducted at the AOS270 ASR-9 facility, which was also host to the key site testing.
3. **Results** - The system test was conducted at the AOS-270 ASR-9 support facility during periods of both peak and normal target load over a period of 2 days with FAA representatives validating the installation. The system test was successful and completed on 10/18/2004.

Key site testing of this modification was conducted at the William J. Hughes AOS-270 support facility. This site was selected to evaluate the modification at facilities that had the ASR-9 antennas.

4. **Test Limitations** - This modification was tested and validated in all known configurations and no additional unique testing is required.

ATTACHMENT 1. ANTENNA BRACKETS

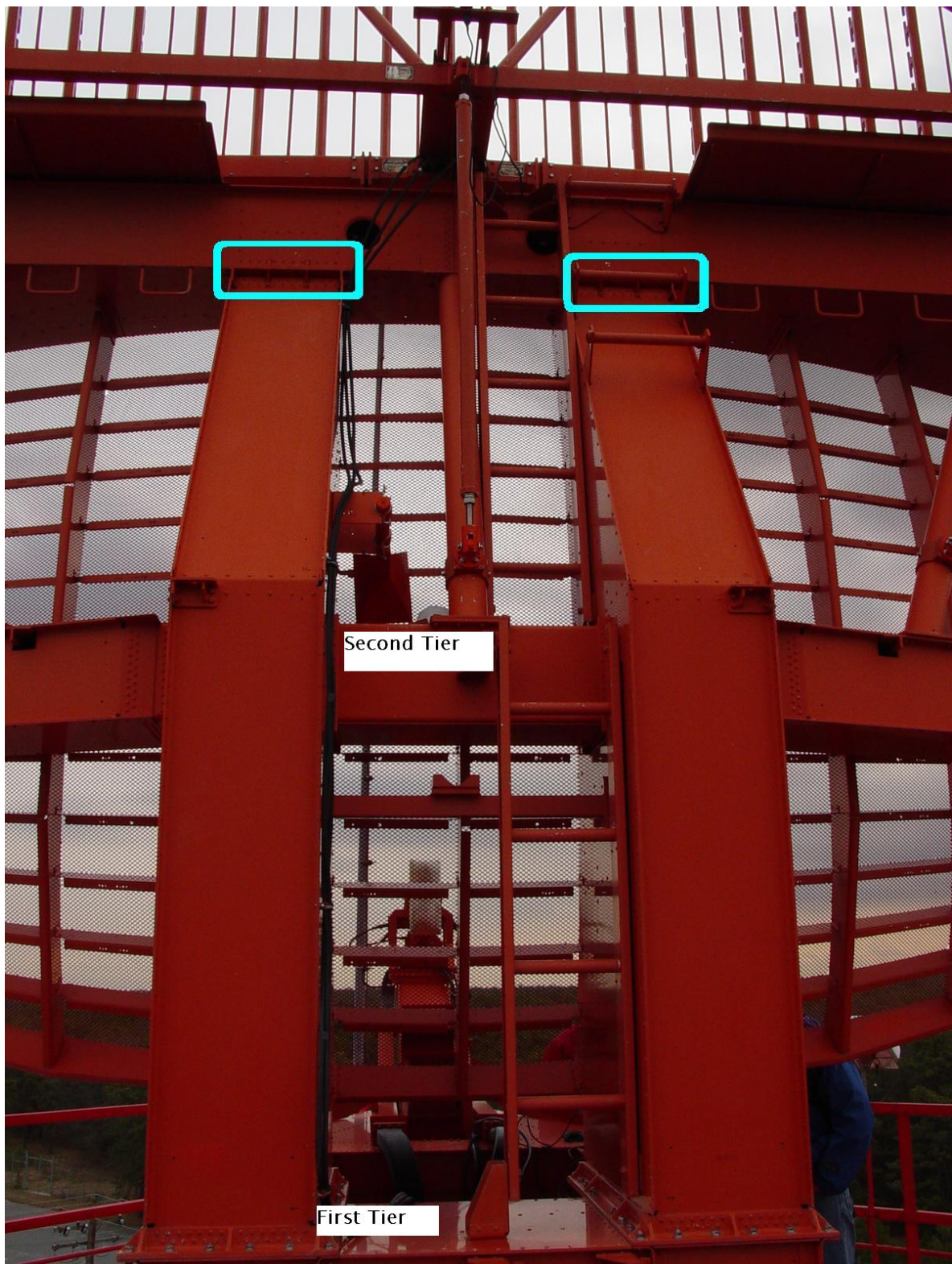


Figure 1. Bracket Positions on the Antenna

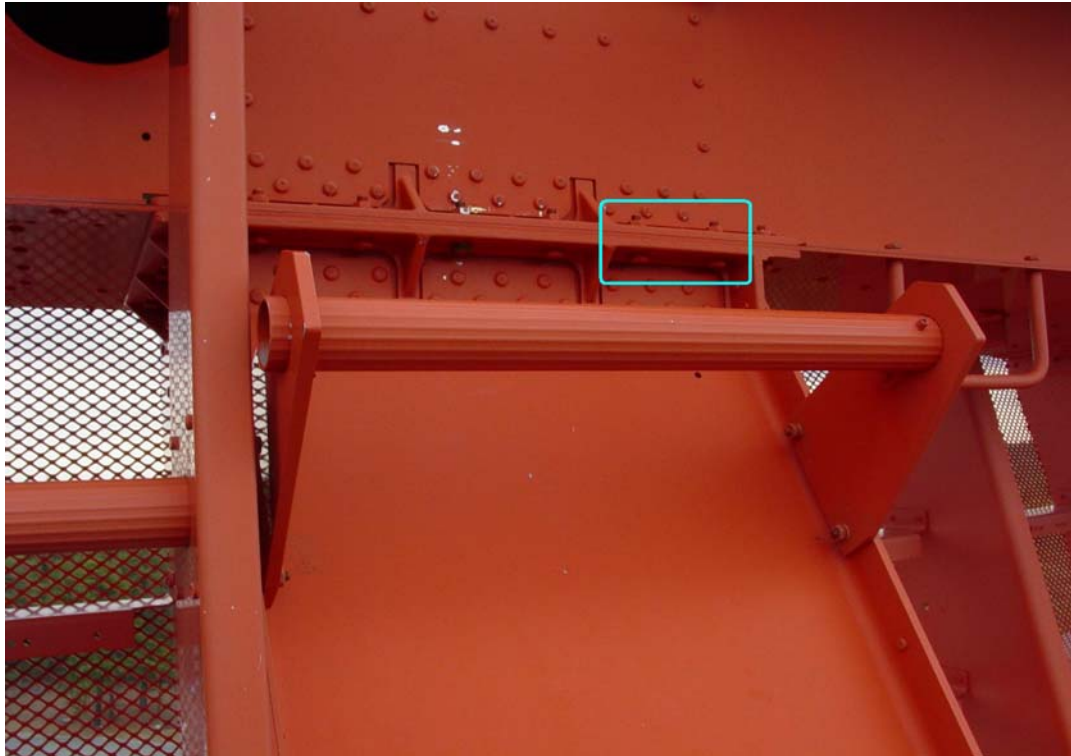


Figure 2. Bracket position Right



Figure 3. Bracket position left



Figure 4 (Left side)

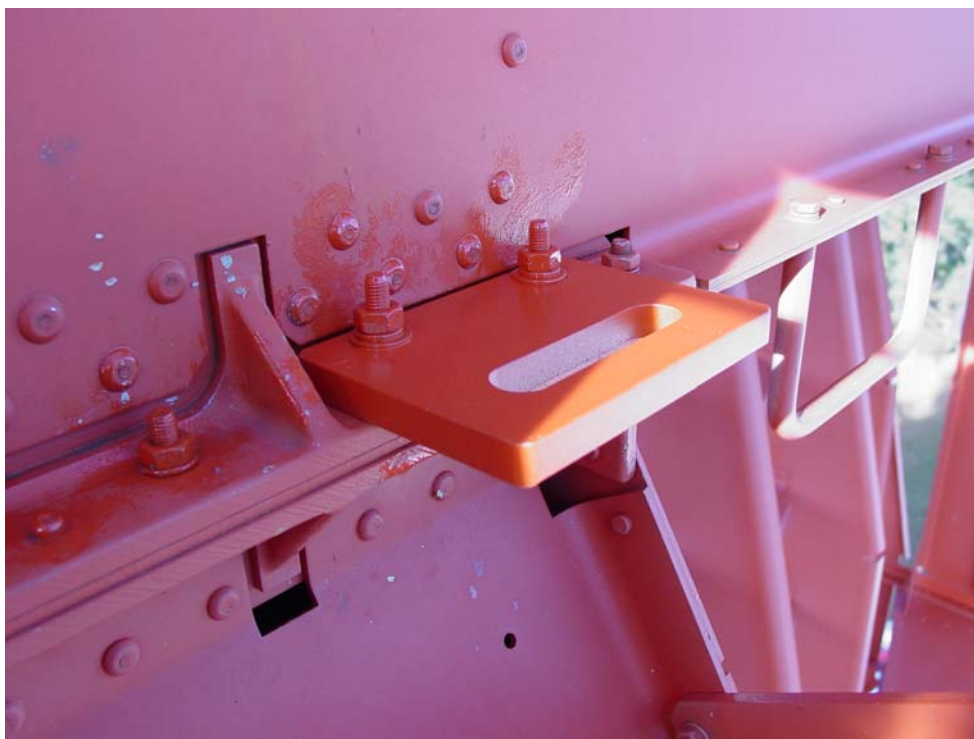


Figure 5 (Right side)

ATTACHMENT 2. SSD TABLE OF CONTENTS

SYSTEM SUPPORT DIRECTIVE (SSD)

TABLE OF CONTENTS

SYSTEM SUPPORT MODIFICATIONS (SSM)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SSM-ASR9-001	04/23/99	ASRS-9 SERIAL INTERFACE SYSTEM
SSM-ASR9-002	02/06/98	TRANSMITTER POWER INTERRUPT AND BLOWER MOTOR FUSE
SSM-ASR9-003	10/19/99	REMOVAL OF CIRCUIT BREAKERS FROM MODEM RACK
SSM-ASR9-004	03/13/98	UPGRADE MODE-S INTERFACE SUPPORT
SSM-ASR9-005	04/01/99	PROCESSOR AUGMENTATION CARD PHASE I
SSM-ASR9-006	04/29/98	ASR-9 REMOTE SCIP CIRCUIT BREAKER WIRING CONNECTION
SSM-ASR9-007	06/07/99	ALTERNATE DUAL REDUNDANT MODIFICATION
SSM-ASR9-008	08/02/99	MUFFIN FAN REPLACEMENT
SSM-ASR9-009	TBD	PROCESSOR AUGMENTATION CARD PHASE II
SSM-ASR9-010	CANCELLED	ASR-9 UPDATES
SSM-ASR9-011	03/26/03	SOFTWARE SUPPORT FOR THE WEATHER SYSTEMS PROCESSOR
SSM-ASR9-012	06/19/03	WEATHER SYSTEMS PROCESSOR INTERFACE TO THE ASR-9
SSM-ASR9-013	06/05/01	ASR-9 SERIAL INTERFACE SYSTEM (ASIS) PHASE II
SSM-ASR9-014	05/20/04	ANOMALOUS PROPAGATION (AP) FILTER
SSM-ASR9-015	TBD	UPDATE PROCOMM PLUS SCRIPTS
SSM-ASR9-016	07/14/03	ASR-9 SERIAL INTERFACE SYSTEM (ASIS) PHASE II DUAL BOARD

SYSTEM SUPPORT MODIFICATIONS (SSM) (Continued)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SSM-ASR9-017	TBD	ASR-9 SERIAL INTERFACE SYSTEM (ASIS) PHASE II -- SMART MODE SOFTWARE
SSM-ASR9-018	11/22/04	SAFETY ANCHOR BRACKET

SYSTEM TECHNICAL RELEASES (STR)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
STR-ASR9-001	02/06/98	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 PROCOMM SOFTWARE UPDATE
STR-ASR9-002	12/29/98	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 PROCOMM SOFTWARE UPDATE VERSION 5.0
STR-ASR9-003	11/29/99	DELIVERY OF AIRPORT SURVEILLANCE RADAR-9 SOFTWARE UPDATE VERSION 6.0
STR-ASR-9-004	12/15/99	ASR-9 VARIABLE SITE PARAMETERS AND PROGRAMMABLE ALARM THRESHOLD/FILTER BASELINE
STR-ASR9-004A	06/20/01	ASR-9 VARIABLE SITE PARAMETERS AND PROGRAMMABLE ALARM THRESHOLD BASELINE UPDATES

SYSTEM DOCUMENTATION RELEASES (SDR)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SDR-ASR9-001	CANCELLED	BY SDR-ASR9-002
SDR-ASR9-002	CANCELLED	BY SDR-ASR9-003
SDR-ASR9-003	05/09/02	ASR-9 TECHNICAL INSTRUCTION BOOKS UPDATE AND REISSUE OF ASR-9 TI CD ROM

SYSTEM DOCUMENTATION RELEASES (SDR) (Continued)

<u>Document Number</u>	<u>Date Issued</u>	<u>Title</u>
SDR-ASR9-004	09/02/03	DELIVERY OF THE AIRPORT SURVEILLANCE RADAR-9 OPTIMIZATION PROCEDURES
SDR-ASR9-005	07/12/04	UPDATE TO STR-ASR9-004A
SDR-ASR9-006	01/23/04	UPDATE TO SSM-ASR9-012 OMIT INCORPORATION OF TI 6310.28 PAGE CHANGES
SDR-ASR9-007	TBD	UPDATE TO TI 6310.28
SDR-ASR9-008	CANCELLED	UPDATE TO EEM 6310.18, CHG. 19, CHAP. 16
SDR-ASR9-009	11/02/04	UPDATE TO TI 6310.25
SDR-ASR9-010	10/08/04	UPDATE TO SSM-ASR9-014
SDR-ASR9-011	10/06/04	ANTENNA WRENCHES

ATTACHMENT 3. INSTRUCTION BOOK CHANGES

WARNING

Do not turn off a pedestal drive by using the branch circuit breaker in the ASR-9 power panel. Doing so will leave the clutch solenoid energized, with the result that the drive turned off will be slave-driven as the second motor continues to rotate the pedestal. This could be hazardous to personnel performing maintenance on the malfunctioning drive unit.

3.4.2 Performing Maintenance

If maintenance is to be performed on a turned-off drive, the applicable MTR 1/MTR 2 circuit breaker should be switched off as a safety measure.

3.4.3 Pushbuttons

While still under local control, a drive can be turned on by pressing, and then releasing, the applicable MTR 1 START/MTR 2 START pushbutton after first making sure that the applicable PS1,4/PS2,3 and MTR 1/MTR 2 circuit breakers are on. Pressing the START pushbutton will cause the applicable MTR 1 OFF/MTR 2 OFF lamp to go out and the applicable MTR 1 ON/MTR 2 ON lamp to light (red).

NOTE

While one drive will rotate the antenna at proper speed under normal circumstances, both should always be turned on if both are operable.

3.4.4 Local Control

Local control is relinquished by switching the LOCAL/REMOTE toggle switch to the REMOTE position; however, that operation should be coordinated with system control. For example, if the antenna has been turned on locally and is to remain on during the switch to remote control, system control must verify that remote ANTENNA ROTATION ON has been selected before switchover is attempted.

3.4.5 Overload Monitoring Feature

The MCLB BYPASS toggle switch can be used to defeat the drive overload monitoring feature provided by motor control logic board 11A1A1. If the board becomes defective and cannot be replaced immediately, switch the MCLB BYPASS toggle switch to OFF. Note, however, that the pedestal drives will not operate if the board is removed because the clutch current return paths will be opened and the clutches will not engage.

3.5 USE OF STOW PIN

A pin is provided for stowing the pedestal turntable in a fixed position when the motors are off. There is only one possible stow position, denoted by alignment reference marks on the moveable turntable and fixed rotator (see figure 11-16, sheet 2, detail D).

3.5.1 Antenna Rotation

To use the stow pin, first rotate the antenna by applying hand pressure anywhere on the rotating beam until the two reference marks are aligned. Press the pushbutton on the pin handle and remove the pin from its holder. Then, while keeping the pushbutton pressed, insert the pin upward through the rotator access hole and into the mating turntable hole. Release the handle pushbutton and gently pull on the handle to verify that the pin is secure.

3.5.2 Stowing Turntable

When maintenance is performed at the tower antenna deck level, the turntable should, in most cases, be stowed as a safety precaution. With the turntable stowed, inadvertent manual movement of the antenna will be prevented. An additional reason for stowing the turntable is that when the stow pin is out of its holder, the electrical drive interlock path is opened and the drive motors cannot be accidentally turned on. If stowing is not necessary, the interlock path can be opened, as a safety measure, by withdrawing the stow pin from its holder.

3.5.3 Stow Pin Holder

When operations that require the turntable to be stowed are concluded, the stow pin should be returned to its holder. To do that, insert the pin in the holder while keeping the pushbutton on the pin handle pressed. Then release the pushbutton and note that it extends fully, thereby indicating proper engagement of the internal interlock switch.

3.6 USE OF BRAKE

A friction brake is provided for holding the antenna pointed in any position when the motors are off. The brake is accessible from the tower mezzanine level (see figure 11-16, sheet 3). To use the brake, rotate its square-head shaft clockwise with a wrench until firm resistance is felt. Then open the Antenna Control (Unit 11) and take out the torque wrench and socket stored there (see figure 11-26, sheet 1). Torque the brake shaft to 124 (-0, +24) foot-pounds. While the brake is applied, the electrical drive interlock path is opened so that the drive motors cannot be turned on. To release the brake, use a wrench to rotate the square-head shaft counterclockwise at least two and one-half turns.

3.7 SECURING THE ANTENNA FOR HIGH WINDS

There is no procedure for securing the antenna for high winds. We recommend that the antenna be allowed to "Free Wheel" with the antenna power off.

3.8 CLEARING ALARMS FROM THE RMS

After maintenance has been performed on the antenna group, several alarms may still appear on the RMS terminal after antenna rotation has been resumed.

3.8.1 Interlocks

When the interlocks, described in paragraphs 3.3.1 and 3.3.2, are restored to normal operation, the Safety Switch On alarm, appearing on the ANTENNA ALARMS menu (0.2.10) must be cleared manually. Clearing the alarm is accomplished by turning on transmitter high voltage in both the online and standby channels. After the alarm is cleared, the transmitter high voltage for the standby channel can be turned off.

3.8.2 Antenna Rotation

When antenna rotation is stopped for performance of maintenance procedures, the system will automatically switch to encoder no. 2. After performing maintenance, unless encoder no. 1 is selected for operation manually, using the APG, MONITOR PANEL VIDEO and STC SELECTION menu (0.1.3), the APG #1 Count and ARP #1 Fault maintenance alerts (MAs) will remain on the ANTENNA ALARMS menu (0.2.10).